MATLAB Problem FINAL

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Title

Matrix-vector multiplication as a linear combination of columns (practice 1)

Problem Description and Instructions

Let the matrix,

\[
A = \begin{bmatrix}
1 & 6 & 8 \\
2 & 7 & 11 \\
3 & 8 & 14 \\
4 & 9 & 17 \\
5 & 10 & 20
\end{bmatrix}
\]

Find a vector, \( x \), such that \( Ax = 0 \).

Think about how many such solutions, \( x \), exist.

Files Referenced

None

Problem Type

○ Script  ○ Function
MATLAB Code

```matlab
A = [1 6 8; 2 7 11; 3 8 14; 4 9 17; 5 10 20];
x = ;
```

Assessment

Assessment Method: Correct/Incorrect

Only show feedback for initial error

Test Type

MATLAB Code

```matlab
assert( exist('x') == 1 );
assert( (size(x,1) == 3) && (size(x,2) == 1) );
```

Feedback on Incorrect (in addition to default feedback)

Variable x must exist, and must be of a size compatible for multiplication by A.
Pretest

Test 2: Check if x is correct

Test Type
MATLAB Code

MATLAB Code

1. assert( norm(x) > 1e-15 )
2. assert( norm(A*x)<1e-4 )

Feedback on Incorrect (in addition to default feedback)

A*x must be 0 (with x ≠ 0)

Pretest

+ Add Assessment

Learner Preview   Validate Reference Solution